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January 25, 2011

Mr. Steve Way
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 8
Mail Code: 8EPR-SA
1595 Wynkoop Street
Denver, Colorado 80202-1129

SUBJECT: **START 3, EPA Region 8, Contract No. EP-W-05-050, TDD No. 1005-04**
Trip Report and Technical Summary – Mogul and Grand Mogul Mines, San Juan County, Colorado.

Dear Mr. Way:

Attached is one copy of the draft Trip Report and Technical Summary conducted at the Mogul and Grand Mogul Mine site in San Juan County, Colorado. Field activities were conducted in June and July of 2010. This document is submitted for your review and comments.

If you have any questions, please call me at 303-291-8269.

Sincerely,

URS OPERATING SERVICES, INC.

Joe Gilbert, PG
Project Manager

cc: Charles W. Baker/UOS (w/o attachment)
File/UOS

EPA ACTION BLOCK

- ◯ Approved
- ◯ Approved, TDD to follow
- ◯ Approved as corrected
- ◯ Disapproved
- ◯ Review with _____
- ◯ Original to _____
- ◯ Copy to _____
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_____ _____
Date By

eastern 15 feet, and then natural rock being encountered along the remaining 10 feet. The trench walls began to fail when talus was encountered, and at this point the excavation was terminated at the eastern extent of the trench. A seep was encountered on the northern wall of the excavation. The seep was observed at between 4 and 8 feet bgs and was approximately 4 feet in width. The discharge from the seep was very low, visually estimated to be less than 1 gpm. It is likely that the seep is associated with the adit. Further investigation of this location was not undertaken due to the instability of the talus slope adjacent to the excavation.

The trench was then extended toward the west. No seeps were encountered along the western extent; talus was encountered after approximately 20 horizontal feet from the origin to the final extent of 110 feet from the origin. Depth to bedrock was approximately 15 feet bgs at the origin, reducing to approximately 8 feet bgs at the northwestern extent.

No mining structures were encountered or disturbed during the excavation. Reinstated materials were consolidated using the weight of the excavator.

A test pit (Test Pit 3) was excavated to 4 feet deep to determine to the depth of cover in the area adjacent to Grand Mogul Mine Pile 2. No water was observed in this trench. Care was taken to restore site conditions to those prior to excavation.

3.5 VOLUME ESTIMATION

Volumes for the Mogul and Grand Mogul waste piles were estimated using data gathered during the site visit and were analyzed in a Geographic Information System (GIS).

During the site visit, the salient lobes and thickest portions within each waste pile were identified, their central points were located with a DGPS, and their thicknesses at their highest point were estimated. The boundary of the waste rock pile was also surveyed using a DGPS in order to provide area estimates and a base footprint for each waste pile.

DGPS measurements were converted to a 3D surface, a convex hull, in a GIS. A GIS was then used to summarize the interior volume of the convex hull, and to determine its 3D surface area. The 2D footprint area was also calculated from collected DGPS data and was summarized in the same GIS. Waste rock volumes and areas are presented in Table A.

TABLE A
Volume Estimates – Waste Piles

Mine	Pile Number	BLM* Name	3D Surface Area (ft^2)	Footprint Area (ft^2)	Volume (yds^3)	BLM* Volume (yds^3)
Mogul	1	--	106,068.5	101,590.6	41,374.7	--
Grand Mogul	1	Lower Waste Pile	8,449.7	4,187.2	845.0	--
Grand Mogul	2	Stope Complex	22,539.8	19,751.9	6,925.9	8,000
Grand Mogul	3	Eastern Waste Pile	42,754.6	39,041.0	18,750.2	9,000

ft^2 – square feet
yds^3 – cubic yards
* "Removal Preliminary Assessment Report, Grand Mogul Mine, Silverton, CO" BLM 2006

3.6 WATER PARAMETERS AND ANALYTICAL DATA

During the site visit in June 2010, field water parameters were collected at various points both upgradient and downgradient of all waste rock piles to determine if there was any influence by the waste rock on surface water discharge. Field parameters gathered during the site visit are presented in Table B and summarized in Figures 2 and 3.

Three water samples were collected at the Mogul Mine site and analyzed for total and dissolved metals using Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and atomic emission spectroscopy (AES) analyses (Table 1). These results are compared to EPA Region 8 data, which were also collected in June of 2010 during a separate sampling event (Table 2). The results are reported in Appendix B. Sample locations are detailed in Figures 2 and 3.

TABLE B
Field Parameters from UOS Site Visit June 2010

Location	pH	Conductivity (mS/m)	Temp °C	Est. Flow Rate (gpm)
MMSW01	3.82	569.00	12.90	10
MMSW02	4.01	820.00	10.50	3
MMSW03	4.50	814.00	10.40	10
Mogul Adit	4.61	969.00	7.50	62
Grand Mogul Pile 1 spring	4.78	157.30	10.20	1
Cement Creek Confluence	5.21	168.40	8.10	1,000
Surface Water near Grand Mogul Pile 2	3.86	166.30	11.30	20